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09/712,181	11/15/2000	Christian Braun	ALL.009	5968
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Jones Valentine LLC 12200 Sunrise Valley Drive Suite 150 Reston, VA 20191			PERSINO, RAYMOND B	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/712,181	BRAUN ET AL.
	Examiner Raymond B. Persino	Art Unit 2682

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3-27 and 29-39 is/are rejected.
- 7) Claim(s) 2 and 28 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 November 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: in the last line of claim 1 contains the word "stucture" which is misspelled. Appropriate correction is required.
2. Claim 4 is objected to because of the following informalities: the last two lines of claim 4 contains the phrase "...said antenna device the close-by environment..." which is awkward. Appropriate correction is required.
3. Claim 25 is objected to because of the following informalities: the last two lines of claim 4 contains a ")" after the word "structure" on line 22 on page 27. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 4 and 30 recite the limitation "the close-by environment". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 4, 10-13, 15, 16, 18-22, 24, 26, 27, 29, 30, 33-36, 38 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by SAITO (US 5,754,104 A).

Regarding claims 1 and 26, SAITO discloses an antenna device for transmitting and receiving radio frequency waves, installable in a communication device, and comprising: an antenna structure switchable between a plurality of antenna configuration states, each antenna configuration state being distinguished by a set of radiation parameters; a switching device (element 123 of figure 1) which selectively switches said antenna structure between said plurality of antenna configuration states; a first receiver (element 124 of figure 1) which receives a first measured operation parameter indicative of the quality of transmission of radio frequency waves by said antenna structure; a second receiver (element 128 of figure 1) which receives a second measured operation parameter indicative of the quality of reception of radio frequency waves by said antenna structure; and a control device (element 129 of figure 1) which controls said switching device, and thus the selective switching of said antenna structure between said plurality of antenna configuration states, in accordance with said received first and second measured operation parameters, so as to improve the quality of at least one of transmission and reception of the antenna structure (column 4 line 50 to column 5 line 17).

Regarding claim 3, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said first and second

receivers respectively receive the first and second measured operation parameters repeatedly (column 4 line 50 to column 5 line 17).

Regarding claim 4, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses a control device, during use of said antenna device in the communication device, controls said switching device to switch between said plurality of antenna configuration states, in accordance with said repeatedly received first and second measured operation parameters, so as to dynamically adapt said antenna device the close-by environment of the communication device (column 4 line 50 to column 5 line 17).

Regarding claim 10, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said antenna device is arranged for connection or disconnection of diversity functionality, in accordance with said received first and second measured operation parameters (column 4 line 50 to column 5 line 17).

Regarding claim 11, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that control device controls said switching device to selectively switch the antenna structure between said plurality of antenna configuration states, in accordance with at least one of said received first and second measured operation parameters, bypassing a respective threshold value (column 4 line 50 to column 5 line 17).

Regarding claim 12, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said control device, in

accordance with at least one of said received first and second measured operation parameters, bypassing a respective threshold value, controls said switching device to selectively switch the antenna structure through said plurality of antenna configuration states; said first and second receiver receiving a respective first and second measured operation parameter for each antenna configuration state; and said control device further controls the switching device to selectively switch the antenna structure to an antenna configuration state with an optimum set of operation parameters (column 4 line 50 to column 5 line 17).

Regarding claim 13, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said control device compares at least one of said received first and second measured operation parameters with a corresponding previously received at least one of first and second measured operation parameters, and switches the antenna structure in accordance with the comparison (column 4 line 50 to column 5 line 17).

Regarding claim 15, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that a plurality of antenna configuration states comprise different numbers of connected antenna elements (column 4 line 50 to column 5 line 17).

Regarding claim 16, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that a plurality of antenna configuration states comprise differently arranged feed connections (column 4 line 50 to column 5 line 17).

Regarding claim 18, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that the measured operation parameter is a measure representing the reflection coefficient of the communication device and said second measured operation parameter is a measure of a received signal strength of the communication device (column 4 line 50 to column 5 line 17).

Regarding claim 19, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said antenna device comprises a device which measures the reflection coefficient and sends the reflection coefficient value to the first receiver (column 4 line 50 to column 5 line 17).

Regarding claim 20, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that the antenna device comprises a device which measures the received signal strength and sends the signal strength value to the second receiver (column 4 line 50 to column 5 line 17).

Regarding claim 21, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that the first and second receivers are provided as a single receiving element (column 4 line 50 to column 5 line 17).

Regarding claim 22, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said control device comprises a central processing unit and a memory for storing antenna configuration data (column 4 line 50 to column 5 line 17).

Regarding claim 24, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that the antenna structure comprises a switchable antenna element having at least one of meander, loop, slot, patch, whip, helical, spiral, and fractal configurations (column 4 line 50 to column 5 line 17).

Regarding claim 27, SAITO discloses method for transmitting or receiving radio frequency waves in an antenna device installable in a communication device, the method comprising: selectively switching an antenna structure switchable between a plurality of antenna configuration states, each antenna configuration state being distinguished by a set of radiation parameters; receiving a first measured operation parameter indicative of the quality of transmission of radio frequency waves by said antenna structure; receiving a second measured operation parameter indicative of the quality of reception of radio frequency waves by said antenna structure; and controlling said selectively switching of the antenna structure between said plurality of antenna configuration states, in accordance with received first and second measured operation parameters, so as to improve the quality of at least one of transmission and reception (figure 1 and column 4 line 50 to column 5 line 17).

Regarding claim 29, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that receiving includes repeatedly receiving the first and second measured operation parameters (column 4 line 50 to column 5 line 17).

Regarding claim 30, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said controlling includes, during use of the antenna device in the communication device, controlling said selectively switching between said plurality of antenna configuration states, in accordance with on repeatedly received first and second measured operation parameters, so as to dynamically adapt the antenna device to the close-by environment of the communication device (column 4 line 50 to column 5 line 17).

Regarding claim 33, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that comprising connecting or disconnecting diversity functionality, independence on received first and second measured operation parameters (column 4 line 50 to column 5 line 17).

Regarding claim 34, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses controlling includes controlling said selectively switching the antenna structure between said plurality of antenna configuration states, in accordance with at least one of first and second measured operation parameters, bypassing a respective threshold value (column 4 line 50 to column 5 line 17).

Regarding claim 35, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses controlling said selectively switching to switch the antenna structure through said plurality of antenna configuration states, in dependence on the at least one of the first and second measured operation parameters, bypassing a respective threshold value; receiving a respective first and

second measured operation parameter for each antenna configuration state; and controlling said selectively switching to switch the antenna structure to an optimum antenna configuration state (column 4 line 50 to column 5 line 17).

Regarding claim 36, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses comparing at least one of received first and second measured operation parameters with corresponding at least one of previously received first and second measured operation parameters, and controlling said selectively switching the antenna structure in accordance with the comparison (column 4 line 50 to column 5 line 17).

Regarding claim 38, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said set of radiation parameters includes at least one of resonance frequency, impedance, radiation pattern, polarization and bandwidth (column 4 line 50 to column 5 line 17).

Regarding claim 39, see the rejection of the parent claim concerning the subject matter this claim depends from. SAITO further discloses that said set of radiation parameters includes at least one of resonance frequency, impedance, radiation pattern, polarization and bandwidth (column 4 line 50 to column 5 line 17).

3. Claims 1 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by ROZANSKI (US 5,530,926 A).

Regarding claim 1, ROZANSKI discloses an antenna device for transmitting and receiving radio; frequency waves, installable in a communication device, and comprising: an antenna structure switchable between a plurality of antenna

configuration states, each antenna configuration state being distinguished by a set of radiation parameters; a switching device (element 13 of figure 1) which selectively switches said antenna structure between said plurality of antenna configuration states; a first receiver (element 15 of figure 1) which receives a first measured operation parameter indicative of the quality of transmission of radio frequency waves by said antenna structure; a second receiver (element 16 of figure 1) which receives a second measured operation parameter indicative of the quality of reception of radio frequency waves by said antenna structure; and a control device (element 17 of figure 1) which controls said switching device, and thus the selective switching of said antenna structure between said plurality of antenna configuration states, in accordance with said received first and second measured operation parameters, so as to improve the quality of at least one of transmission and reception of the antenna structure (column 2 lines 7-29).

Regarding claim 27, ROZANSKI discloses method for transmitting or receiving radio frequency waves in an antenna device installable in a communication device, the method comprising: selectively switching an antenna structure switchable between a plurality of antenna configuration states, each antenna configuration state being distinguished by a set of radiation parameters; receiving a first measured operation parameter indicative of the quality of transmission of radio frequency waves by said antenna structure; receiving a second measured operation parameter indicative of the quality of reception of radio frequency waves by said antenna structure; and controlling said selectively switching of the antenna structure between said plurality of antenna

configuration states, in accordance with received first and second measured operation parameters, so as to improve the quality of at least one of transmission and reception (figure 1 and column 2 line 30 to column 4 line 2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-8 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over SAITO (US 5,754,104 A) in view of MURAT (GB 2327572 A).

Regarding claims 5-8, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose that the plurality of antenna configuration states is adapted for use of the antenna device in the communication device in a respective predefined operation environment (talk or other positions such as waist or pocket). MURAT discloses a plurality of antenna configuration states adapted for use of the antenna device in the communication device in a talk or hands free operation environment (pages 1-5). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the plurality of antenna configuration states is adapted for use of the antenna device in the communication device in a respective predefined operation environment. This is beneficial in that it allows for the optimal antenna configuration state.

Regarding claim 31, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose that the plurality of antenna configuration states is adapted for use of the antenna device in the communication device in a respective predefined operation environment (talk or other positions such as waist or pocket). MURAT discloses a plurality of antenna configuration states adapted for use of the antenna device in the communication device in a talk or hands free operation environment (pages 1-5). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the plurality of antenna configuration states is adapted for use of the antenna device in the communication device in a respective predefined operation environment. This is beneficial in that it allows for the optimal antenna configuration state.

6. Claims 9 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over SAITO (US 5,754,104 A) in view of BELCHER et al (US 5,589,844 A).

Regarding claim 9, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose that the antenna device is arranged for switching frequency bands in accordance with said received first and second measured operation parameters. BELCHER et al discloses antenna device is arranged for switching frequency bands (column 1 line 64 to column 3 line 17). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have antenna device is arranged for switching frequency bands. This is beneficial in that it allows for the antenna to be optimized for the frequency that is being used.

Regarding claim 32, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose switching the frequency band in dependence on said received first and second measured operation parameters. BELCHER et al discloses antenna device is arranged for switching frequency bands (column 1 line 64 to column 3 line 17). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have antenna device is arranged for switching frequency bands. This is beneficial in that it allows for the antenna to be optimized for the frequency that is being used.

7. Claims 14 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over SAITO (US 5,754,104 A) in view of OVERTBURRY et al (US 6,046,697 A).

Regarding claim 14, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose that said control device includes a look-up table with combinations of received first and second measured operation parameter ranges, each combination being associated with a respective antenna configuration state, said control device adjusting said switching device to the respective antenna configuration state in accordance with said look-up table. OVERTBURRY et al discloses a control device includes a look-up table with combinations of received first and second measured operation parameter ranges, each combination being associated with a respective antenna configuration state, said control device adjusting said switching device to the respective antenna configuration state in accordance with said look-up table (figure 3 and 4 and column 4 lines 47-57).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the control device include a look-up table with combinations of received first and second measured operation parameter ranges, each combination being associated with a respective antenna configuration state, said control device adjusting said switching device to the respective antenna configuration state in accordance with said look-up table. The use of a look-up table allows for less precise alteration means because alteration can be predetermined.

Regarding claim 37, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose storing a look-up table with combinations of received first and second measured operation parameter ranges, each combination being associated with a respective antenna configuration state, and referring to said look-up table for adjusting said selectively switching to the respective antenna configuration state. OVERTBURRY et al discloses storing a look-up table with combinations of received first and second measured operation parameter ranges, each combination being associated with a respective antenna configuration state, and referring to said look-up table for adjusting said selectively switching to the respective antenna configuration state (figure 3 and 4 and column 4 lines 47-57). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to store a look-up table with combinations of received first and second measured operation parameter ranges, each combination being associated with a respective antenna configuration state, and referring to said look-up table for adjusting said selectively switching to the respective

antenna configuration state. The use of a look-up table allows for less precise alteration means because alteration can be predetermined.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over SAITO (US 5,754,104 A) in view of REK (WO 99/44307 A2).

Regarding claim 17, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose a plurality of antenna configuration states comprise differently arranged ground connections. REK discloses a plurality of antenna configuration states comprise differently arranged ground connections (abstract). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made for a plurality of antenna configuration states to comprise differently arranged ground connections. This is beneficial in that it is particularly suitable for use in an application which needs to be relatively small in size or relatively inexpensive, or both.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over SAITO (US 5,754,104 A) in view of LAM et al (US 5,541,614 A).

Regarding claim 23, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose a switching device comprises a microelectromechanical system (MEMS) switch device. LAM et al discloses a switching device comprises a microelectromechanical system (MEMS) switch device (abstract). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a switching device comprises a

microelectromechanical system (MEMS) switch device. This is beneficial in that it provides increased performance.

10. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over SAITO (US 5,754,104 A) in view of RUSTAKO, Jr. et al (US 3,693,088 A).

Regarding claim 25, see the rejection of the parent claim concerning the subject matter this claim depends from. However, SAITO doesn't explicitly disclose an antenna structure comprises a transmitting antenna structure and a receiving antenna structure; and said switching device comprises a transmitter switching device and a receiver switching device, said transmitting antenna structure and said transmitter switching device being arranged in a transmitter antenna device, and said receiving antenna structure) and said receiver switching device being arranged in a receiver antenna device, wherein said transmitter antenna device and said receiver antenna device are controllable independently of each other by said control device. RUSTAKO, Jr. et al discloses an antenna structure comprises a transmitting antenna structure and a receiving antenna structure; and said switching device comprises a transmitter switching device and a receiver switching device, said transmitting antenna structure and said transmitter switching device being arranged in a transmitter antenna device, and said receiving antenna structure) and said receiver switching device being arranged in a receiver antenna device, wherein said transmitter antenna device and said receiver antenna device are controllable independently of each other by said control device (figure 1 and column 2 line7 to column 3 line 13). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have an

antenna structure comprising a transmitting antenna structure and a receiving antenna structure; and said switching device comprises a transmitter switching device and a receiver switching device, said transmitting antenna structure and said transmitter switching device being arranged in a transmitter antenna device, and said receiving antenna structure) and said receiver switching device being arranged in a receiver antenna device, wherein said transmitter antenna device and said receiver antenna device are controllable independently of each other by said control device. This is beneficial in that it allows for the performance gains of diversity to be achieved for both transmission and receiving separately.

Allowable Subject Matter

11. Claims 2 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 2 and 28, the applicant includes the subject matter that the control device, at installation of said antenna device in a particular model of communication device, controls said switching device to switch between said plurality of antenna configuration states, in accordance with said received first and second measured operation parameters, so as to adapt said antenna device to suit said particular model of communication device. This limitation, in conjunction with the additional subject matter associated with the claim, comprises a unique combination of subject matter that is neither taught nor suggested by the prior art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

AKAIWA et al (US 5,710,995 A)

SMITH et al (US 5,680,142 A)

IRVIN (US 6,021,317 A)

KIRISAWA et al (US 6,297,780 B1)

PRATER (US 5,617,102 A)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond B. Persino whose telephone number is (703) 308-7528. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on (703) 308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond B. Persino
Examiner
Art Unit 2682

RP


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SUPERVISORY PATENT EXAMINER
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